

# A Pre-Experimental Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Burns and Electrocution among GNM II Year Students in Baba Educational Society, Institute of Paramedical, College of Nursing, Lucknow

Ms. Akansha Verma, Ms. Amrita Gautam, Ms. Anchal Singh, Ms. Anjali Rawat,  
Ms. Anjali Yadav, Ms. Ankita Chaudhary, Ms. Ankita Pandey, Ms. Ankita Verma,  
Ms. Anushika Pandey, Ms. Anushika Pandey, Mrs. Anjali Chaturvedi

Department of Child Health Nursing, Baba Educational Society Institute  
of Paramedical College of Nursing, Lucknow, Uttar Pradesh, India

## ABSTRACT

The present study has been conducted to know the effectiveness of structure teaching program (STP) on knowledge regarding prevention of Burns and Electrocution among GNM II Year students at various colleges of Nursing of Lucknow. The selection of sample was done through convenient sampling. The sample size was 30. The method of data collection was through demographic variables and self-structured knowledge questionnaire regarding prevention of Burns and Electrocution among GNM II Year students. Result a show there is structured teaching program was effective in improving the knowledge regarding prevention of Burns and electrocution.

**KEYWORDS:** *knowledge, Structure Teaching Program, Effectiveness, Burns and Electrocution, Prevention*

**How to cite this paper:** Ms. Akansha Verma | Ms. Amrita Gautam | Ms. Anchal Singh | Ms. Anjali Rawat | Ms. Anjali Yadav | Ms. Ankita Chaudhary | Ms. Ankita Pandey | Ms. Ankita Verma | Ms. Anushika Pandey | Ms. Anushika Pandey | Mrs. Anjali Chaturvedi "A Pre-Experimental Study to Assess the Effectiveness of Structured Teaching Programme on Knowledge Regarding Prevention of Burns and Electrocution among GNM II Year Students in Baba Educational Society, Institute of Paramedical, College of Nursing, Lucknow"

Published in  
International Journal  
of Trend in  
Scientific Research  
and Development  
(ijtsrd), ISSN: 2456-  
6470, Volume-7 |  
Issue-3, June 2023, pp.473-480, URL:  
[www.ijtsrd.com/papers/ijtsrd57384.pdf](http://www.ijtsrd.com/papers/ijtsrd57384.pdf)



IJTSRD57384

Copyright © 2023 by author (s) and International Journal of Trend in Scientific Research and Development Journal. This is an Open Access article distributed under the terms of the Creative Commons Attribution License (CC BY 4.0) (<http://creativecommons.org/licenses/by/4.0>)



## INTRODUCTION

“Burns” is defined as one of the most devastating conditions encountered in the medicine. The injury represents an assault on all aspects of the patients from the physical to the psychological. The visible physical and invisible psychological scars are long lasting.

A burns is defined as an injury to the skin or other organic tissue caused by thermal trauma, it occurs when some or all of the cells in the skin or other tissues are destroyed by hot liquids (scalds), hot solids (contact burns), or flames (flame burns). Injuries to the skin or other organic tissue due to

radiation, radioactivity, electricity, friction or contact with chemicals are also considered as burns.

“Burn can be defined as any injury that results from the direct contact or exposure to any thermal, chemical, electrical or radiation source”.

Burns may be distinguished and classified as thermal burns, inhalational burns, first degree or superficial burns, second degree or partial-thickness burns, third-degree or full-thickness burns. Chemical burns electrical burns, radiation burns.

“An electrocution is defined as an Injury or death resulting from the passage of electric current through the body”. “Electrical injuries are when high-energy current travels through the body due to contact with an electrical source. Injuries occur due to either the flow of current through the body, arc flash, or clothing that catches fire. With the former two, the body converts electricity to heat, which results in a thermal burn. It is important to consider that the outward appearance of an electrical burn does not accurately predict the true extent of the injury, as internal tissues or organs may be much more severely burned than the skin.

According to data collected from the national burn information exchange reveal that 75% of all burn injuries result from the actions of the victim, with many of these injuries occurring in the home environment. Contact with scalding liquids is the leading cause of burn injury. Toddlers suffer more from scald injuries than any other age group. Scald injuries are frequently the results in the performance of everyday tasks such as bathing, cooking, overturned coffeepots, overheated foods, liquids cooked in micro wave ovens and hot tap water have been identified as specific causes.

Approximately 10% of residential fire deaths are caused by children playing with matches or other ignition sources. Additionally faulty chimney's, flue vents, fixed heating units, fireplaces, central heating systems. Wood burning stoves, as well as human error, all have been implicated. Burns in children under the age of five year old at higher risk of hospitalization often occur from a mixture of curiosity and awkwardness. In children under the age of four years, the level of motor development does not match the child's cognitive and intellectual development and injuries can thus occur more easily.

Clinical features of burns includes, First degree partial thickness burns, Second degree partial thickness burns, Third degree full thickness burns, Fluid and Electrolyte imbalance, Alterations in Respiration, Decreased cardiac output, Substantial pain, Altered level of consciousness, Psychological

alterations, withdrawal, suppression. Burns on the skin surface where the energy has entered and exited the body and confused condition Problems with sight Paralysis (from disrupted nerve pathways) Irritable or restless, whether conscious or unconscious weak, irregular, or absent pulse damage to internal muscles and tissues.

The first and most important step in management of burn and electrocution is helping someone who has suffered from electrocution is to promptly begin DR ABCD. Danger - Check for any dangers surrounding the victim. If power lines are down both first aiders and by standers should stay at least 8-10 meters away from the lines. Make sure all power sources are turned off. Never touch the casualty with bare hands unless health care giver are sure that there is no danger to his/her. Response - Assessment of the victims response by “squeeze and shout” Airway- Open the airway and look for signs of life Breathing- Give 2 initial rescue breaths Compression- Give 30 compressions followed by 2 breaths Defibrillation - Attach the AED and follow the prompts initial management includes assessment and maintenance of following parameters with ABCDE approach: Airway, Breathing, Circulation, Disability and Exposure. In all cases, tetanus prophylaxis should be administered. Wound care. Systemic antibiotics are given to treat and prevent wound infections'. Proper nutrition with adequate supply of energy and proteins should be given to patients. Specialized care may be provided during healing process in the form of skin grafts or surgical release of contractures due to scars.

It necessary to remove the victim from the source or to break the current if conditions allow and then immediately arrange for transport to a hospital to be treated properly. When treating Electrical and lightening burns it is important to: Avoid or neutralize electrical and other dangers Conduct a primary survey. Arrange medical aid as required Remove victim to a safe environment Remove all jewellery from the affected area Provide oxygen to victims if necessary apply a dry sterile dressing to the wound.

Prevention of burns and electrocution may involve: Do not allow children to play with any electrical cord. Limit use of extension cords and be sure the cord is rated for the current (measured in amps) that will be drawn by the device being powered. Use outlet covers to protect infants from exploring electrical outlets. Update old, ungrounded electrical outlets to grounded (3-prong) systems. Replace outlets near any water (sink, tub) with fused (GFCI) outlets. In children older than 12 years, most electrical injuries result from exploring and activities around high-power systems. Explain to adolescent children that they

should not climb on power towers, play near transformer systems, or explore electrified train rails or other electrical systems. Enclose fires and limit the height of open flames in domestic environments. Cooking on floor should be avoided. Restrain playing of toddlers in kitchen/cooking area. Watch the child constantly especially around gas burners, stoves, ovens, microwaves, heaters and other appliances. Turn pot handles toward the back or centre of the stove to prevent tipping. Never cook while holding a child. Carefully use electrical appliances and switch off all electrical appliances when not in use. Avoid use of unauthorized gas cylinders & kerosene stove/Chula. Use safe stoves and lamps. Avoid loose clothing while cooking. Tie up loose saree end (pallu) or stole (chunni) properly. Never hold a cup of hot liquid near infant/toddlers. Check the temperature of water before bath. Beware of high tension wires passing over terrace or balcony and do not keep open electrical wires at home. Supervise children while lighting fire crackers. Do not hold the cracker while bursting. Don't point the burning fireworks towards you/others. Don't fiddle with un-burnt crackers. Always light or burst crackers in open area /ground. Secondary Prevention; Both pre-hospital and hospital care play an important role in the management of burn patients by preventing deaths and disability.

### NEED OF THE STUDY:

Burns is a second leading cause of accidental death in children.

According to the WHO global burden of disease estimates for 2004, just over 3,10,000 people died as a result of fire-related burns, of which 30% were under the age of 20 years. Fire related burns are the 11<sup>th</sup> leading cause of death for children between the ages of less than 5 years. Overall children are at high risk for death from burns, with a global rate of 3.9 deaths per 1, 00,000 populations. Among all people globally, infants have the highest death rates from burns. Globally nearly 96,000 children under the age of 20 years were estimated to have been fatally injured as a result of a fire related burn in 2004. WHO conducted a study on facts about burns. In this, Burns is the fourth leading cause of unintentional injury death in United States of America. Annually, close to 2.5 million people are treated for burn injuries, out of which 10,000 are died & 60,000 to 1,00,000 require hospitalization.

Children are at greatest risk of death from burns. Burns are one of the most neglected areas of health care in developing countries. These countries have 90% of global burn injuries with 70% of these injuries occurring in the children. In India more than 10,000 burn associated with deaths over a 1 million

non-fatal moderate to severe burns occur each year. Burns constitute a major health problem in India.

A very high mortality in major burns was noted two decades ago. The record of all burn patients admitted to the general hospital, Sangli, Maharashtra, India. The report says that an annual mortality rate of 1,00,000 to 1,40,000. This staggering incidence is largely due to illiteracy, poor living condition, neglect of children and social customs that are unique in India. Overall Mortality rate is 68.5%. A Population Survey of 30,554 people in New Delhi by WHO [2003] revealed the mortality and incidence due to burns to be 10/100000 and 955/100000 Population per year. Respectively, During 2001, 32509 persons died in India due to burns.. The death rate in low income and middle income countries was eleven times higher than that in high income countries, 4.3 per 1,00,000 as against 0.4 per 1,00,000. Most of the deaths occur in poorer regions of the world among the WHO regions of Africa and South East Asia and the low income and middle income countries of the eastern Mediterranean region.

A survey in India found that only 22.8 % of patients had received appropriate first aid for their burns. The remainder had either received no first aid or else inappropriate treatment such as raw eggs, toothpaste, mashed potato or oil being rubbed into the burn. Education on The effect of immediate application of cool water to burns should be promoted widely as an affective first aid treatment.

Electrical burns are associated with significant morbidity and mortality, which are usually preventable with simple safety measures. An observational retrospective study of non-lightening electrocution deaths was conducted in Lucknow, India between 2008 and 2012. Out of 83 deaths, 71 investigated were accidental and the rest were suicidal. The age range was 11 months to 75 years with a mean age of  $28.9 \pm 12.5$  years. About 65 (78%) were males and the rest were females. The upper extremity was the most frequently involved contact site in 51 deaths (61%). No electrical burn marks were present in 10 (11.9%) cases. Work-related accidents were responsible for 49 cases of deaths (59%) and home accidents for 19 cases of deaths (22.9%). Deaths were caused most frequently by touching an electrical wire (35 cases, 41.9%). There was an increase in electrocution deaths in the months of July–September (32 cases, 39%). About 50 cases (60.7%) were dead at the scene of the accident and 33 cases (31.9%) were dead on arrival at the hospital. The unique findings of this study include 12 cases (14.4%) of suicidal electrocution and a high rate of work-related accidental electrocution. Death rates



from electrocution among all medico-legal deaths were found to be lower in this study than in previous reports, most of them were work-related and preventable. Workers and their employers should be educated to avoid such accidents with safety measures.

In high income countries children under the age of 5 years old at the highest risk of hospitalization from burns. Nearly 75 % of burns in young children are from hot liquid, hot tap water or steam, contact burns from radiators or hot water pipes.

## OBJECTIVES-

1. To assess the existing knowledge regarding prevention of burns and electrocution among GNM II year students in Baba Educational Society, Institute of paramedical, College of Nursing, Lucknow.
2. To evaluate the effectiveness of structured teaching programme on knowledge regarding prevention of burns and electrocution among GNM II year students in Baba Educational Society, Institute of paramedical, College of Nursing, Lucknow .
3. To find out the association between the pre-test knowledge score with their selected demographic variable.

## OPERATIONAL DEFINITION:

**Assess:** It is the organized, systemic and continue process of collection of data and the statistical measurement of knowledge regarding prevention of burns and electrocution by using Self-Structure Questionnaire.

**Effectiveness:** Effectiveness refers to increase the level of knowledge regarding prevention of burns and electrocution among GNM II year after implementing structured teaching programme.

**Knowledge:** This study refers to understanding and awareness of the GNM II year students regarding prevention of burns and electrocution.

**Structure teaching programme:** Structured teaching programme refers to a pre-plan session conduct to impart knowledge regarding prevention of burns and electrocution to the selected GNM II year students.

**Burn:** Burn is define as an injury to the skin or other organic tissue caused by thermal trauma that by heat, friction, electricity, radiation, or chemicals.

**Electrocution:** “An electrocution is an Injury or death resulting from the passage of electric current through the body”.

**Prevention:** It refers to be taken for the avoidance of burns and electrocution.

## HYPOTHESIS:

**Ho** - There is no significant difference between pre-test and post-test scores on knowledge regarding prevention of burns and electrocution among GNM II year students in Baba Educational Society, Institute of paramedical, College of Nursing, Lucknow.

**H<sub>1</sub>** - There is significant association between pre-test and post-test score knowledge regarding prevention of burn and electrocution among GNM II year students in Baba Educational Society, Institute of paramedical, College of Nursing, Lucknow.

## RESEARCH APPROACH

**According to Creswell** “Research approach comprises strategies and methods for research that extends the decision from general assumption through methods of data gathering and reasoning”.

The research approach used for this study is quantitative research approach.

## RESEARCH DESIGN

**Ahuja (2002)** defines that is “A master plan which explain the techniques the method for assembling and scrutizing the needed information”.

The research design is the master plan specifying the methods and procedures for collecting and analysing the needed information in a research study.

The research designs selected for this study was pre-experimental one group pre-test post-test design.

## RESEARCH SETTING

Setting is the physical location and conditions in which the data collection takes place in study.

The research study was conducted at Baba Educational Society, Institute of Paramedical, College of Nursing, Lucknow.

## POPULATION

**Polit and Hungler (2000)** defined that “Population is the complete aggregation of cases that meets an intended set of criterion”.

Population is the set of people or entities to which the results of a research are to be generalized.

The population of the study was GNM II year students.

## TARGET POPULATION

A target population consists of the total number of people or objects which are meeting the designated set of criteria. The target population was GNM II year students of Baba Educational Society, Institute of Paramedical, College of Nursing, Lucknow.

## ACCESSIBLE POPULATION

Accessible population is the aggregate of cases that conform to designated criteria and are also accessible as subjects for a study.

Accessible population was 30 students of GNM II year of Baba Educational Society, Institute of Paramedical, College of Nursing, Lucknow.

### SAMPLE SIZE

A proportion or subset of the population is known as sample.

Sample is representative unit of a target population. The sample size for the present study was 30 students of GNM II year

### CRITERIA FOR SAMPLE SELECTION

**Inclusion criteria:** This includes

### RESULTS

A total of 30 students were selected from GNM II Year at Baba educational society institute of paramedical College of Nursing Lucknow.

- Students study at GNM II year of Baba Educational Society, Institute of Paramedical, College of Nursing, Lucknow.
- Willing to participate in the study.
- Available during the period of data collection
- **Exclusion criteria:** This includes–
- Students who students studied in GNM I year

### SAMPLING TECHNIQUE

Convenient sampling technique

**Table No: 1.1 Frequency and percentage distribution of structured teaching programme on knowledge regarding Prevention of burns and electrocution based on demographic variables.**

S. No.	Demographic variables	Frequency	Percentage%
1	Age in year	18	3.333
		19	16.666
		20	40
		21 and above	40
2	Staying at	Hostel	13.333
		Home	66.666
		Rent	20
3	Previous exposure to information regarding prevention of burns and electrocution	Yes	86.666
		No	13.333
4	Staying with	Parents	56.666
		Friends	26.666
		Alone	3.333
		With Relative	13.333

The majority of GNM II Year students (40%) belong to the 20 year and 21 year and above age group, (66.66%) belong to the staying at home, (86.66%) have previous exposure to information regarding prevention of Burns and Electrocution, (56%) students staying with parents.

**Table no.1.2 Distribution of overall knowledge score**

SCORE	PERCENTAGE	LEVEL OF KNOWLEDGE
0-10	0-33%	Inadequate knowledge
11-20	34-66%	Moderate knowledge
21-30	Above 66 %	Adequate knowledge

**Table No: 1.3 Chi-square Test Showing the Association between Pre-Test Knowledge Score of students with their selected demographic variables.**

Selected demographic variables	Category	Knowledge level mean			DF	Table value	Obtained value	Significance
		Inadequate	Moderate	Adequate				
Age in year	18	0	1	0	6	12.59	6.349	NS
	19	0	5	0				
	20	3	8	1				
	21 and Above	4	5	3				
Staying at	Hostel	1	3	0	4	9.49	1.24	NS
	Home	4	13	3				
	Rent	2	3	1				
Previous exposure to information regarding prevention on burn & electrocution	Yes	7	15	4	2	5.99	2.668	NS
	No	0	4	0				
Staying with	Parents	5	11	1	6	12.59	8.221	NS
	Friends	2	3	3				
	Alone	0	1	0				
	With relatives	0	4	0				

N=30

NS = Not significant

S=Significant

Table no:1.3 shows that there is no significant association between pre-test knowledge score and selected demographic variables of students such as age, staying at, previous exposure to information regarding prevention of Burns and Electrocution, staying with.

## DISCUSSION

The majority finding of this study include -(40%) belong to the 20 year and 21 year and above age group, (66.66%) belong to the staying at home, (86.66%) have previous exposure to information regarding prevention of Burns and Electrocution, (56%) students staying with parents. A majority (70%) of students had adequate knowledge score in Post-test as compared to the pre- test, the majority (30%) had moderate knowledge score in the post -test as compared to the pre-test and only (0%) had inadequate knowledge.

Posttest mean score (22.5) was higher than the mean Pretest knowledge score (14.3) the difference is (8.2). The computed t' value ( $t=29$ ), table value ( $t_{29}= 2.45$ ) at 0.05 level of significance. Obtained value is 6.532. so ,the obtained value is higher than table value. Hence, the research hypothesis is accepted. It was inferred that the mean difference between pre-test and post-test knowledge score was statistically significant.

A Chi-square test and t-test were used to find out the association between pre-test and post-test knowledge score and selected demographic variables.

The mean difference between pre-test and post-test knowledge score of prevention of Burns and Electrocution among GNM II Year students, was found to be statistically significant ( $t=29$ ,  $P<0.05$ ).

The results clearly showed that the structure teaching program was useful in improving the knowledge of GNM II Year students regarding prevention of Burns and Electrocution. The gain in knowledge was the effect of Structure Teaching Program and the result was highly significant at 0.05 levels.

## NURSING IMPLICATION

### Nursing Education

In-service education is to be provided to the nursing personnel at various levels to make them aware on burns and electrocution and its prevention which will enable them to provide health education to the nurses and society on prevention of burns and electrocution and its management. There is a need for nurses to

develop health- teaching material for teaching the parents. Health education should be a part of the job description of various categories of nursing personnel. Nursing curriculum should include more projects on prevention of burns and electrocution.

Workshops, seminars and symposium can be organized were parents, school teachers, and staff

nurses on identifying the problems leading to prevention of burns and electrocution.

### Nursing Administration

The administrator should facilitate the implementation of structured teaching programme to make aware GNM II year students about burns and electrocution and its management and prevention. In community nurses ratio should be increased, so that they can provide knowledge about prevention of burns and electrocution and its management and improve the practices regarding burns prevention and management among GNM students. Implementing more nursing staffs and provision of knowledge will increase level of prevention and managements of burns and electrocution. Community health nurses should visit the home to find out the homely practices of community peoples. In-service education for the staff regarding prevention of burns and electrocution should be conducted to update their knowledge in this area. In each session they should assess their level of knowledge and skill before and after the continuing education programme, and evaluate the effectiveness as well as the problem they face. The staff should be encouraged to prepare teaching materials and audio visual aids regarding various health related topics and display them in the wards, OPD and community settings. Health administration should make the education department aware of the prevailing health problems and assign the staff for conducting the structured teaching programme in hospital, schools and the community in general.

There should be necessary health education, material and administrative support provided to conduct health programme. Adequate funds should be provided to develop health teaching materials and make them accessible to all the staff in the hospital as well as in the community.

### Nursing Practice

Students of GNM II year knowledge deficit indicates the need for organizing health education session to them regarding prevention of burns and electrocution and its management by the nurse both in hospital and community level. So that, this will help in creating awareness among community people about prevention of burns and electrocution which in turn can promote the healthy society.

### Nursing Research

Instructional materials can be developed in order to increase the awareness among society peoples on prevention of burns and electrocution.

### REFERENCES

- [1] Dhansekharan N. Indhumathi L; (2021). The study knowledge on pediatric firstaid management among mother with under five children in Bharatpur, Journal of College of Medical Sciences-Nepal, 17(1), 30-35 <https://doi.org/10.3126/jcmsn.v17i1.29565>, Vol. 17 No. 1 (2021): Jan-Mar.
- [2] Annanmreddi leelavathi, Pamaja, et.al, (2018). A study to assess the effectiveness of structured teaching program on intervention of burns and scalds wound healing among mother of less than five admitted in pediatric at svrrggh tirupati, International Journal of Pediatric Nursing / Volume 4 Number 2 / May – August 2018.
- [3] Dhansekharan N. Indhumathi L; (2021). The study knowledge on pediatric firstaid management among mother with under five children in Bharatpur, Journal of College of Medical Sciences-Nepal, Vol. 17 No. 1 (2021): Jan-Mar.
- [4] Dhopte Amol, Tiwari V. K, et.al, (2017). Epidemiology of pediatric burns and future prevention strategies- a study of 475 patients from a high-volume burn center in North India, Plastic & Maxillofacial Surgery, VMMC & Safdarjung Hospital, New Delhi, between January and December 2014 were included in the study.
- [5] F Alqantani, MO. Ayed Alanazi, (2009). Study knowledge and practices related to burn first aid among majmaah community, Saudi Arabia, Journal of Pharmaceutical Research International.
- [6] Ben Young, Amanda J Mason-Jones, et.al, (2013). Home safety education and provision of safety equipment for injury prevention (Review). Evidence-Based Child Health: A Cochrane Review Journal.
- [7] Dr. Shyni S Babu (2021). A study to assess the effect of structured teaching program on prevention and first-aid for burn among mother's of underfives in selected area at Trivandrum district Journal homepage: [www.ijrpr.com](http://www.ijrpr.com) ISSN 2582-7421.
- [8] Delgado J, Ramiraz-Cardich ME, et.al, (2002). A study was conducted on "Burns and scalds first aid home treatment in London.
- [9] Parab Gayatri, Parab Swapnil, et.al, (2019). A descriptive study to assess the knowledge regarding selected pediatric hospital kolhapur.
- [10] Mr.J.Absar Hussain, (2014). A study to assess the effectiveness of self-instructional module



- on knowledge regarding first aid and safety measures among school children in selected school at Madurai.
- [11] Patel Janki, Pandey Arpan, et.al, (2013). A study to assess the effectiveness of structure teaching programme on knowledge regarding prevention of childhood accidents among mothers of under five children at Piparia, Vadodara, Journal of Injury and Violence Research.
- [12] Khan N, Malik MA., (2006). To presentation of burn injuries and their management of outcome. To study the causes of burn and presentation of burn patients to POF hospital and their overall management outcome, national library of medicine.
- [13] Lari AR, Panjeshahin MR, (2002). A descriptive study was conducted to determine first aid knowledge and practices of ill or injured children in mothers, TJPRC: International Journal of Nursing and Patient Safety & Care (TJPRC: IJNPSC) Vol. 1, Issue 1, Dec 2016, 31-38.
- [14] Mc Cormack RA, La Hei ER, et.al, (2003). A study was conducted on characteristics of pediatrics burns patient, Canadian Journal of Surgery Canadian Medical Association.
- [15] Mashrekey SR, Rahman A, et.al, (2009). A study was conducted perception of rural people about childhood burns and their prevention: a basis for developing a childhood burns prevention program in Bangladesh, national library of medicine.

